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## CHANGING WESTERN WATER INSTITUTIONS: ENERGY'S ROLE

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### Abstract

One consequence of the recently increasing emphasis on energy development is public concern about the adequacy of supportive natural resources, particularly water. This concern with "water for energy" comes at a time when droughts, declining water tables, and increasing urbanization would stress society's water institutions even in the absence of energy development. But, as the relatively new user on the water scene, energy attracts a major share of public attention.

This paper describes the institutional mechanisms through which physical availability of water, historical pattern of water use, and unresolved water issues combine to constrain and channel the energy industry's use of water. These institutional mechanisms include the developing markets for water rights, the legal and administrative structure governing water allocation, the formation of social attitudes about water, and the political process that often implements consensus. Within this context, the narrow physical interpretation commonly given to the question "Is there enough water?" broadens greatly to include the institutional dimension that is the most important component of the question.

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The era of water development that has occupied the American West for at least the last hundred years<sup>1</sup> is yielding to institutional change, and our time may be characterized best as the period of water management. As the readily accessible virgin water supplies of the region, both surface and ground, near or reach full appropriation, increasing use is being made of alternatives to water development, particularly water transfers and water conservation. Commensurate with the changing pattern of water management practices, the institutions that govern water allocation within the state, basin, and nation are also experiencing change or pressure for change.<sup>2</sup> In this summary paper, we focus on the role of the energy industry bringing about this change.

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Since the oil embargo of 1973 and the subsequent dramatic increases in the price of petroleum, public attention has focused on the relationship between water and energy in the West.<sup>3</sup> The national concern has centered largely on the adequacy of the region's water resources in supporting energy development, while much of the regional interest has focused on the reverse aspect of the relationship, namely the impact of energy on the region's scarce water supplies. In recent years, projections of reduced energy development in the West coupled with a deepening understanding of both the industry's economic ability to acquire water and to adopt water conserving practices have dispelled much of the national concern about either physical or economic availability of water.

Although local subbasins may not easily accommodate energy facilities, from a regional perspective, water is unlikely to be a serious physical or economic constraint on energy development, barring an emergency or crash development program. Attention has shifted to the institutional constraints that exist in the legal, administrative, and political impediments to acquisition of water for energy purposes.<sup>4</sup> The tangle of water-related permissions and approvals through which an energy project must move before construction are lengthy and in some instances fatal.

The institutional constraints facing energy, however, will not be resolved as readily as are physical and economic problems. For those constraints reflect the defense mechanisms that Western society has developed over the last century to protect its water resources. Appurtenancy laws, anti-export statutes, non-impairment provisions, and other institutional features of western water regions were designed to secure the status of a water use once that use was established, and in many ways this institutional structure has served the region's population well.<sup>5</sup> Certainly the vision of John Wesley Powell and others who saw the development of the West as dependent upon the creation of a secure foundation for water rights has been realized. But, with the arrival of full appropriation, some of these same rules and laws are no longer as serviceable as before and must be changed.

Although protection of the individual and the societal interests in an established pattern of water use will remain an important function of the regional water institutions, new water uses, such as energy and urban growth, will not permit protection to imply preservation of the status quo. Already appurtenancy provisions have fallen in many states, and anti-export statutes currently are being tested in the courts.<sup>6</sup> The authors contend that the energy industry will play an important, perhaps critical, role in modifying or even creating institutions for the management of water under conditions of full appropriation. This role could have fallen exclusively to manufacturing or to urban growth, rather than to energy. But international events have dramatically increased the pressure for development of western energy resources. Moreover, energy has a considerable ability to pay the sometimes enormous costs associated with institutional change. Water is but a small portion of the actual dollar costs of energy production, yet water may be an essential element in public acceptance of facility siting.<sup>7</sup> Thus, energy has

both the need and the capability to seek institutional change. Experiences with coal slurry pipelines,<sup>8</sup> equitable apportionment suits,<sup>9</sup> (and power plant siting<sup>10</sup> suggest that the energy industry is in fact assuming this role, whether inadvertently or by design.

What is the essential nature of the institutional change that converts an era of water development to a period of water management? As long as unappropriated water existed, water institutions had to consider only the generic question of whether a newly proposed use was beneficial. To answer this question legislatures, courts, and administrations constructed elaborately detailed responses. But yesterday's water development question was much simpler than today's management question under our fully appropriated condition. In considering any shift in water use, society's water institutions must now answer the question of which use is more beneficial.

This escalation in the complexity of judgments produces major conflicts and requires an array of information. More beneficial to whom? Which benefits will be counted? These are not simple questions, and, as a society, we will not find easy answers. It is not surprising that state governments are deciding these issues (as in the ETSI cases in Wyoming and South Dakota) or that the decisions are becoming politically heated. No well-charted course, previously agreed to by either law or tradition, yields unambiguous answers. If only economic values count, and if only benefits to usufructuary rightholders may enter the ledger books, decisions may be quite different from accountings that include cultural values not readily quantified in an economic sense. Considering benefits to the entire society rather than benefits to single rightholders complicates decisionmaking.

As a matter of practice, market forces are determining the bulk of reallocation decisions.<sup>11</sup> The parties with standing in the decision only extend to other rightholders by virtue of the non-impairment provisions in the water law of most western states. Yet there is considerable evidence that this practice is proving inadequate in major cases of water reallocation, and this inadequacy may extend ultimately to the procedures for judging all proposed transfers.

Consider the political clamor<sup>12</sup> that surrounds the defense of state sovereignty over water. It is not enough that energy or some out-of-state water claimant may be willing to purchase water rights from existing users; strong public sentiment asserts a public interest in the use of water that is not compensated sufficiently by payments to individuals.<sup>13</sup> In the one recent example of a state agreeing to export its water,<sup>14</sup> substantial compensation is being paid directly to state government and both the governor and the legislature formally agreed to the export as representatives of the public interest.

The key condition seems to be public acceptance of a proposed change in water use, with the public concluding that the change is indeed more beneficial. Existing transfer procedures whereby only other rightholders have standing to contest changes in use are likely

to prove inadequate in an era of water management. All interests must have an opportunity to voice their concerns, and a consensus must be reached that operationally defines the term "more beneficial." Whose interests must be considered? To what extent must they be considered?

As a society, we are just beginning to construct a politically acceptable operational definition. Whereas certain features of the ultimate definition seem clear, as suggested above, others will be harder to fashion. For example, what standing should be given to in-stream values? Although not as quantifiable as the jobs and income that accompany energy production, in-stream uses of water nevertheless have their strong proponents.

Eventually emplaced procedures will routinize the judgments about what is more beneficial. Until that time, judgments will be made in the political sphere and will be hotly argued. Perhaps by understanding the process in which we are engaged, we can dissipate some of the tension.

#### References and Notes

1. A useful benchmark for the beginning of the period may be the publication of John Wesley Powell's Report on the Arid Lands in 1878.
2. For an extended discussion of this change and the issues involved see Allen V. Kneese and F. Lee Brown, The Southwest Under Stress, Johns Hopkins Press for Resources for the Future, 1981, and "Western Water Institutions in a Changing Environment," Vols. 1 and 2, Gary Weatherford, Ed., prepared by The John Muir Institute, Inc., for the National Science Foundation, 1980.
3. For a discussion of this relationship see David Abbey, Lee Brown, and Fred Roach, "The Role of Water in Energy Development," presented at the 148th National Meeting of the American Association for the Advancement of Science, January 5, 1982 (to be published by Westview Press).
4. See, particularly, Institutional Constraints on Alternative Water for Energy, Gary Weatherford, Ed., prepared by The John Muir Institute, Inc., for the U.S. Department of Energy, November, 1980.
5. The most notable exceptions to this statement are those Indian tribes whose paper rights to water have yet to be transformed into "wet water."
6. *El Paso v. Reynolds*, CN 80-730-HB in U.S. District Court for the District of New Mexico, and *Sporckas et al v. Nebraska*, on appeal to the U.S. Supreme Court, are two such cases.
7. Related remarks by Rodney Clark of Los Angeles Power and Light are in "Groundwater Conflicts and Barriers," Ground Water and Energy, Proceedings of the U.S. Department of Energy National Workshop, Albuquerque, New Mexico, January 29-31, 1980.

8. Energy Transportations Systems Inc. (ETSI) has struck a novel water agreement with South Dakota.
9. Colorado Fuel & Iron's proposed use of water that would result from an equitable apportionment suit (*Colorado v. New Mexico*, No. 80, Original in the Supreme Court of the U.S., October term, 1977) has established the use of an economic criterion for apportionment by the Special Master in the case.
10. The water agreements surrounding the Intermountain Power Project offer innovative methods for achieving water transfers. See Clark.<sup>7</sup>
11. See F. Lee Brown, Brian McDonald, and John Tysling, "Water Reallocation, Market Proficiency, and Conflicting Social Values," in "Western Water..."<sup>2</sup>, and Raman Khoshaklogh, Lee Brown, and Charles Dumars, Forecasting Future Market Values of Water Rights in New Mexico, New Mexico Water Resources Research Institute report #92, November 1977.
12. See, for example, the Albuquerque Journal's Impact Magazine (December 8, 1981) discussion of the *El Paso v. Reynolds*<sup>6</sup> water suit in which New Mexico's statutory prohibition against the export of groundwater is being challenged as unconstitutional.
13. Seventy per cent of Arkansans surveyed opposed even considering the sale of Arkansas water to adjacent states. Arkansas Public Awareness Survey on Water Resources, July 1981.
14. The ETSI South Dakota agreement was cited earlier.
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## Keywords

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